

Serial No. 10/518,315  
Filed: December 16, 2004

### **REMARKS/ARGUMENTS**

Reconsideration of the above application in view of the below remarks is requested.

In the Office Action, the Patent Office rejected claims 1 to 18 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Bohm et al (US 4027046) in view of Tanaka et al (US 5622743) and rejected claims 19 to 26 under 35 U.S.C. § 103(c) as allegedly being unpatentable over Bohm et al (US 4027046) in view of the combination of Tanaka et al (US 5622743) and Brewing Science and Practice (pages 556-559). These rejections are traversed.

The present invention in claims 1 to 18 teach a method for clarifying and stabilizing liquid foods comprising adding to the liquid foods colloidal, anionic silica sols of a pH of 1 to 4, a particle diameter of 4 to 150 nm and a surface area of 20 to 700 m<sup>2</sup>/g.

The present invention in claims 19 to 26 teach a process for clarifying and stabilizing fermented and unfiltered beer comprising: adding to a fermented and unfiltered beer a sufficient amount of an aqueous suspension of colloidal, anionic silica sols having a pH of 1 to 4, a particle diameter of 4 to 150 nm and a surface area of 20 to 700 m<sup>2</sup>/g; allowing flocculation to proceed; and removing any formed sediment, whereby a clear beer of good stability having a sodium content identical to the unclarified beer is obtained.

In rejecting claims 1-26, the Examiner has stated in the rejection that "Bohm teaches that both acidic and alkaline sols were available at the time". Bohm in column 1 lines 48-51 discloses commercially available conventional sols, "There are already various processes for producing silica sols of this kind. The sols are commercially

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available in the form of weakly alkaline and weakly acid solutions..” Bohm further goes on in the same teaching to describe the disadvantages of commercial conventional sols in column 1, line 64- column 2 line 1, “Another serious advantage of conventional gelatin/silica sol fining is that it only removes very small quantities of high molecular weight, thermally labile, colloiddally dissolved protein compounds which are responsible for hazing with the result that it is not possible in this way to obtain any protein stabilization.” Thus it is obvious to one of ordinary skill in the art that although conventional commercial weakly alkaline or weakly acidic silica sols were available, they were not acceptable for clarification since protein stabilization was not obtainable. In fact Bohm teaches against the use of weakly alkaline or weakly acidic sols due to their disadvantageous properties and as such lead to his invention of an aluminate sol. Furthermore, there is no suggestion or motivation that leads one of ordinary skill in the art to even consider using weakly alkaline or weakly acidic sols. To further dissuade one of ordinary skill in the art to even consider using weakly alkaline or weakly acidic sols the Comparison Example in column 4 of Bohm shows the inefficacy of using conventional silica sols, where hazing was found after treatment.

Thus there is absolutely no teaching, suggestion or motivation in Bohm to show the desirability of using weakly acidic commercially available silica sols. The prior art of Bohm provides neither the suggestion nor the expectation of success for using weakly acidic silica sols, both by his statements as discussed above and the inefficacy of the comparison example. Since the use of acidic sols are disclosed to be disadvantageous, there is no teaching in Bohm to use sols which are in any way acidic. To further support the undesirability of acidic sols, Bohm references US 2,892,797 as a description of making the aluminum sols. As presented in the previous response, US '797 clearly states that 1) alkaline sols are desirable, 2) a sol with a pH of 4 forms a gel and 3) a sol of pH 3.7 causes aggregation, column 4, lines 58 to 75; thus yet again teaching away

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from the use of acidic sols of pH 4 or less. Therefore there is absolutely no motivation, teaching, suggestion or expected desirability of changing the pH of the sol to be acidic and further to be even 4, since at a pH of 4, gellation was observed. So, one of ordinary skill in the art would not look further to Tanaka, since Bohm teaches against acidic sols and Tanaka only teaches using weakly acidic silica xerogels. Thus, the applicants submit to the Examiner that obviousness cannot be established since there is no teaching, suggestion or motivation to combine Bohm with Tanaka. Since Bohm himself teaches the undesirability of using acidic silica sols, and teaches away from the use of weakly acidic sols, the applicants request that the Examiner remove Bohm and Tanaka as prior art references for any novelty or obviousness rejection.


Further Bohm teaches the use of aluminumate sols for clarification of beverages. Today it is known that aluminum may be associated with health hazards, such as Alzheimer, so one would not look to the reference of Bohm for a teaching of clarification of liquid foods.

Thus, in total, the applicants have shown that Bohm is not an appropriate prior art reference for the present application for claims 1-26, since it teaches against the use of acidic sols. The combination of Bohm and Tanaka is also not an appropriate combination for rejecting claims 1-18. Similarly, the remaining references of Brewing Science and Practice-which itself is not available for rejection due to its publication date of 2004, Green et al, Guzman et al, McKeown and Earl, and K. Raible et al, only show that beer may be filtered with silica sols or gels, without any detailed disclosure of the sols or gels and further do not teach adding a silica sol with the parameters of the present sol, and as such do not provide any support for an obviousness or novelty rejection for claims 19-26. The removal of Bohm makes the present inventions allowable.

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Applicants submit that the concerns of the Patent Office have been addressed. Withdrawal of the rejections and issuance of a Notice of Allowance is respectfully solicited.

Respectfully submitted,



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